

**AWARD NUMBER:** CDMRPL-16-0-DM167009

**TITLE:** Telehealth 2.0; Preserving Continuity of Behavioral Health Clinical Care to Patients Using Mobile Devices

**PRINCIPAL INVESTIGATOR:** Jeanette R Little

**CONTRACTING ORGANIZATION:** U.S. Army Telemedicine and Advanced Technology Research Center (TATRC)  
Fort Detrick, Maryland 21702

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14. ABSTRACT This project aims to use mobile technology to leverage telehealth services as a means to maximize the continuity-of-care that the military healthcare system (MHS) can provide to Service Members when they are temporarily relocated due to military service requirements, but require and are engaged in behavioral health (BH) services. The effort will focus on utilization of the patient's personal mobile device in an approved, secure fashion to maintain the established therapeutic relationships with their BH provider(s) during an outside the continental United States (OCONUS) temporary duty assignment (TDY) using a relational model of care delivery to complete a course of treatment that the patient sought out prior to being reassigned. As a result of this project best practices will be established in order to lay the groundwork for more expansive transformations of the tele-BH care delivery process, minimizing disruptions in psychotherapeutic interventions, working collaboratively between remote and local sites for comprehensive care, and potentially reshaping how telehealth is delivered in operational venues.					
15. SUBJECT TERMS  Nothing listed					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 11	19a. NAME OF RESPONSIBLE PERSON <del>XXXXXXXXXX</del> USAMRMC
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (Include area code) <del>(703) 781-2394</del>

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1. **INTRODUCTION.** This project aims to use mobile technology to leverage telehealth services as a means to maximize the continuity-of-care that the military healthcare system (MHS) can provide to Service Members when they are temporarily relocated due to military service requirements, but require and are engaged in behavioral health (BH) services. The effort will focus on utilization of the patient's personal mobile device in an approved, secure fashion to maintain the established therapeutic relationships with their BH provider(s) during an outside the continental United States (OCONUS) temporary duty assignment (TDY) using a relational model of care delivery to complete a course of treatment that the patient sought out prior to being reassigned.

There are four specific aims to this research effort: (1) develop the required technology enhancements to the existing mobile health (mHealth) product to support this project (2) to test the feasibility of the mobile interface for patient use; (3) to establish the acceptability of this technology approach with BH providers; and (4) deploy and evaluate the technology solution in a clinical context. As a result of this project best practices will be established in order to lay the groundwork for more expansive transformations of the tele-BH care delivery process, minimizing disruptions in psychotherapeutic interventions, working collaboratively between remote and local sites for comprehensive care, and potentially reshaping how telehealth is delivered in operational venues.

2. **KEYWORDS:**

Telehealth  
Virtual Health  
Mobile Health  
Remote Behavioral Health  
Remote services  
Teletherapy  
Telepsychology  
Bring Your Own Device  
BYOD

3. **ACCOMPLISHMENTS:** The PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer whenever there are significant changes in the project or its direction.

- **What were the major goals of the project?** There are four technical objectives for this research effort:
  - A. Develop the capability to provide mobile telehealth to patients in remote locations
  - B. Maximize the patient and provider's usability ratings of the mHealth product(s)
  - C. Determine the technical feasibility of providing care from CONUS to OCONUS locations
  - D. Identify technical issues to revise in order to improve the quality of and access to care delivered remotely

- **What was accomplished under these goals?**

Actions Completed To Date:	Completion Date
A. JPC-1 Awarded Project	21 June 2016
B. Research Support Services Contraction action submitted to USARMAA	10 October 2016
C. Face-to-face meeting with USAMRAA to finalize procurement strategy	11 January 2017
D. Phase 1 of the research support services contract solicitation was posted on the Federal Business Opportunities Website	21 February 2017
E. Phase 1 vendor eligibility selection completed	29 March 2017
F. Phase 2 of the research support services contract solicitation was posted on the Federal Business Opportunities website	30 March 2017
G. USAMRAA Contract awarded to UTHSCSA	12 June 2017
H. Contract Kick-Off meeting with UTHSCSA	26 June 2017

- **What opportunities for training and professional development has the project provided?** Nothing to report at this juncture. This project has not yet matured to the point of providing training and professional development opportunities, but opportunities for the behavioral health teams to learn novel means of outreach to their established patients do exist with this project, and are expected to be achieved in the next year.
- **How were the results disseminated to communities of interest?** Nothing to Report.
- **What do you plan to do during the next reporting period to accomplish the goals?**  
In the next quarter, the following milestones will be accomplished to further this project towards its stated end goals:

Milestones to be Completed:	
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	Projected Completion Date
<b>Specific Aim 1: mHealth Technology Advancement</b>  Task 2: New Desktop VTC infrastructure hosted by DHA VNC online  Task 3: Define/Finalize Technical Requirements	15 August 2017  30 September 2017
<b>Major Task 1: Administrative Preparation for Research</b>  Subtask 1: Introduce project to the Fort Hood Community  Subtask 2: Refine eligibility criteria, exclusion criteria, screening protocol for pilot  Subtask 3: Develop pilot protocol  Subtask 4: Finalize consent form and human subjects protocol	30 September 2017  31 August 2017  30 September 2017  30 September 2017

4. **IMPACT:** Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:

- **What was the impact on the development of the principal discipline(s) of the project?** Nothing to Report
- **What was the impact on other disciplines?** Nothing to Report
- **What was the impact on technology transfer?** Nothing to Report
- **What was the impact on society beyond science and technology?** Nothing to Report

5. **CHANGES/PROBLEMS:**

- **Changes in approach and reasons for change.** Nothing to Report
- **Actual or anticipated problems or delays and actions or plans to resolve them.**  
There have been two specific problems resulting in timeline delays to the project launch:
  - Request for VNC support for research effort. At the time of the proposal development the Video Network Center (VNC) in San Antonio identified the Cisco Jabber for Telepresence as the means for the provider desktop Video

Teleconference access to this project. However, at the time of the award, the VNC informed the research team that this solution had been grandfathered, and would not be available as a source of the military infrastructure for use in this research project. In October 2018, the VNC informed us that they had just procured a new solution, the Cisco Meeting server (formerly Acano) that would leverage a SIP based exchange and would allow connections outside of the .mil firewall to meet our research objectives. In early March 2017, the VNC informed the research team that the new solution would not be online until “at least” May of 2017. A further update was provided to the research team in early June 2017, that the software would be operational by 15 August 2017. Based on the contracting delays, this timeline is acceptable to the research team, and the plan to utilize the VNC Cisco Meeting server as the SIP based solution for this project will be the desired course of action. However, until this action is completed, it will be challenging to commence the technical testing of the research effort.

- Contracting for Research Support Services. This project was awarded in June 2016, after the contracting cutoff deadline for new contract actions by USMRAA. Therefore no action could be taken to execute the research support services contract portion of this effort until after 1 October 2016. Between July and September 2016 the PI and co-PIs worked to finalize the research support service requirements and complete all the contracting paperwork. After an initial kick-off meeting in mid-October, through the first quarter of FY17, the research team worked with the contracting officers to finalize the performance work statement and evaluation factors. On 11 January 2017, a face-to-face meeting with the USAMRAA team to express the need for expediency on this contracting action. On 21 February 2017, the initial posting of the research support services contract for this effort was posted on the Federal Business Opportunities website. This contract was structured as a two phased solicitation, where the first posting would evaluate the vendors’ eligibility to perform research support work at Fort Hood. As a result of this first phase of the contracting action, two vendors were determined to be eligible via the evaluation process to continue to phase 2 contracting proposal phase. On 30 March 2017, the second phase of this contracting award process was posted on Federal Business Opportunities website, allowing the two eligible vendors to submit full proposals for competitive evaluation. Only one of the two eligible vendors submitted a full proposal, and USAMRAA awarded the contract for research support services to UTHSCSA on 12 June 2017. A kick off meeting with this vendor occurred on 26 June 2017. At the end of this reporting period, the research team is in the early stages of coordination and drafting of the research protocol.
- **Changes that had a significant impact on expenditures** The overall timeline of the project commenced on 12 June 2017 with the award of the research support services contract by USAMRAA. Based on the SOW, the project is now estimated to be completed in December 2019 (see Appendix B for revised SOW/timeline established on 26 June at the contract kick-off meeting. Because of this change in the timeline, the research team has requested to the JPC-1 that the second year of project funding be issued in FY18 rather than FY17.
- **Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents.** Nothing to Report

- **Significant changes in use or care of human subjects** Nothing to Report
- **Significant changes in use or care of vertebrate animals.** N/A – Nothing to Report
- **Significant changes in use of biohazards and/or select agents.** N/A – Nothing to Report

**6. PRODUCTS:** List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state “Nothing to Report.”

- **Publications, conference papers, and presentations**

**Journal publications.** Nothing to Report

**Books or other non-periodical, one-time publications.** Nothing to Report

**Other publications, conference papers, and presentations.** Nothing to Report

- **Website(s) or other Internet site(s).** Nothing to Report
- **Technologies or techniques.** This project is using Commercial Off the Shelf (COTS) software and existing mobile health systems in a novel way to reach established behavioral health patients outside of fixed facilities
- **Inventions, patent applications, and/or licenses.** Nothing to Report
- **Other Products** Nothing to Report

**7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS**

- **What individuals have worked on the project?**

Name: Project Role: Researcher Identifier (e.g. ORCID ID): Nearest person month worked: Contribution to Project: Funding Support:	COL Jeffrey Yarvis Co-PI n/a 1 Co-PI None
Name: Project Role: Researcher Identifier (e.g. ORCID ID): Nearest person month worked: Contribution to Project: Funding Support:	Dr. Larry Pruitt Co-PI 0000-0001-6925-7830 2 Co-PI None

Name: Project Role: Researcher Identifier (e.g. ORCID ID): Nearest person month worked: Contribution to Project: Funding Support:	Dr. Katherine Dondaville Co-PI 0000-0003-4204-7926 1 Co-PI JPC-1
Name: Project Role: Researcher Identifier (e.g. ORCID ID): Nearest person month worked: Contribution to Project: Funding Support:	Amanda Schmeltz Research Project Manager Support n/a 2 Project Management JPC-1

- **Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?** Nothing to Report.
- **What other organizations were involved as partners?**

Organization Name: T2

Location of Organization: Joint Base Lewis-McCord, WA

Partner's contribution to the project: Facilities (e.g., project staff use the partner's facilities for project activities)

Collaboration (e.g., partner's staff work with project staff on the project)

Organization Name: CRDAMC

Location of Organization: Fort Hood, TX

Partner's contribution to the project: Facilities (e.g., project staff use the partner's facilities for project activities)

Collaboration (e.g., partner's staff work with project staff on the project)

Organization Name: UTHSCA/StrongStar Consortium

Location of Organization: San Antonio, TX and Fort Hood, TX

Partner's contribution to the project: Facilities (e.g., project staff use the partner's facilities for project activities)

Collaboration (e.g., partner's staff work with project staff on the project)

## **8. SPECIAL REPORTING REQUIREMENTS**

**COLLABORATIVE AWARDS:** N/A.

**QUAD CHARTS:** See Appendix A.

## **9. APPENDICES:** N/A

## Appendix A: Quad Chart

### Telehealth 2.0; Preserving Continuity of Behavioral Health Clinical Care to Patients Using Mobile Devices

PI: Jeanette Little, MS Co-PIs: Dr. Larry Pruitt/COL Jeffrey Yarvis Org: MPMC TATRC

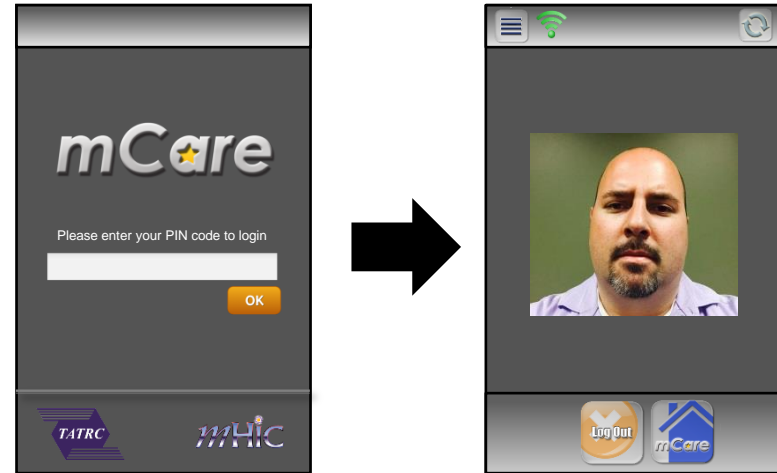
Amount of the Award: \$1,571,021.00

#### Study/Project Aims:

1. Develop the required technology enhancements to the existing mobile health (mHealth) system, to support this project
2. Test the feasibility of the mobile interface for patient use
3. Establish the acceptability of this technology approach with BH providers
4. Deploy and evaluate the technology solution in a clinical context

#### Approach:

This project aims to use mobile technology to leverage telehealth services as a means to maximize the continuity-of-care that the military healthcare system (MHS) can provide to Service members when they are engaged in behavioral health (BH) services, but must temporarily relocate due to the requirements of their military service. The effort will focus on utilization of the patient's personal mobile device in an approved, secure fashion to maintain the established therapeutic relationships with their BH provider(s) during an outside the continental United States (OCONUS) temporary duty assignment (TDY) using a relational model of care delivery to complete a course of treatment that the patient sought out prior to being reassigned.



**Accomplishments:** Project was accepted for funding; funding received in the last QTR of FY16; funding transfers to co-PIs and academic partner contracts are currently in progress.

Activities	CY16	CY17	CY18	CY19
Develop tech enhancements				
Test feasibility of mobile interface				
Establish acceptability of technology approach with BH providers				
Deploy and evaluation technology solution in clinical context				
<b>Estimated Budget (\$K)</b>		<b>\$1,024,091</b>	<b>\$546,930</b>	

#### Goals/Milestones:

- **CY17 Goals** – Begin Technology Enhancements/Complete Technology Enhancements/Complete End User Usability Assessment
- **CY18 Goal** – Commence Pilot Project with Ft Hood EBH Team
- **CY19 Goal** – Project Completion

#### Comments/Challenges/Issues/Concerns:

DHA HIT VNC is no longer supporting use of the existing desktop VTC software that was proposed for this project, a request has been sent to support the next generation software on a pilot basis. Minor issue of changing technical approach. Contracting delays for research support services delayed timeline to project start of 12 June 2017

#### Budget Expenditure to Date:

FY16 Projected Expenditures: \$ 1,024,091

FY16 Actual Expenditures To Date: Obligated: \$558,347.24 / Committed: \$434,193.65

FY17 Projected Expenditures: \$546,930.00